SEQUENCE LISTING

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<120> HIGH AFFINITY INTEGRIN POLYPEPTIDES AND
USES THEREOF

<130> 00786-804001

<140> US 09/758,493
<141> 2001-01-11

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<151> 2000-07-31

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<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 191
<212> PRT
<213> Homo sapiens

<400> 1
Cys Pro Gln Glu Asp Ser Asp Ile Ala Phe Leu Ile Asp Gly Ser Gly
1 5 10 15
Ser Ile Ile Pro His Asp Phe Arg Arg Met Lys Glu Phe Val Ser Thr
20 25 30
Val Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln
35 40 45
Tyr Ser Glu Glu Phe Arg Ile His Phe Thr Phe Lys Glu Phe Gln Asn
50 55 60
Asn Pro Asn Pro Arg Ser Leu Val Lys Pro Ile Thr Gln Leu Leu Gly
65 70 75 80
Arg Thr His Thr Ala Thr Gly Ile Arg Lys Val Val Arg Glu Leu Phe
85 90 95
Asn Ile Thr Asn Gly Ala Arg Lys Asn Ala Phe Lys Ile Leu Val Val
100 105 110
Ile Thr Asp Gly Glu Lys Phe Gly Asp Pro Leu Gly Tyr Glu Asp Val
115 120 125
Ile Pro Glu Ala Asp Arg Glu Gly Val Ile Arg Tyr Val Ile Gly Val
130 135 140
Gly Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Ile
145 150 155 160
Ala Ser Lys Pro Pro Arg Asp His Val Phe Gln Val Asn Asn Phe Glu
165 170 175
Ala Leu Lys Thr Ile Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala
180 185 190

<210> 2
<211> 191
<212> PRT
<213> Homo sapiens

<400> 2
Cys Pro Arg Gln Glu Gln Asp Ile Val Phe Leu Ile Asp Gly Ser Gly
1   5   10   15
Ser Ile Ser Ser Arg Asn Phe Ala Thr Met Met Asn Phe Val Arg Ala
            20   25   30
Val Ile Ser Gln Phe Gln Arg Pro Ser Thr Gln Phe Ser Leu Met Gln
        35   40   45
Phe Ser Asn Lys Phe Gln Thr His Phe Thr Phe Glu Glu Phe Arg Arg
    50   55   60
Thr Ser Asn Pro Leu Ser Leu Leu Ala Ser Val His Gln Leu Gln Gly
65   70   75   80
Phe Thr Tyr Thr Ala Thr Ala Ile Gln Asn Val Val His Arg Leu Phe
                85   90   95
His Ala Ser Tyr Gly Ala Arg Arg Asp Ala Thr Lys Ile Leu Ile Val
            100   105   110
Ile Thr Asp Gly Lys Lys Glu Gly Asp Ser Leu Asp Tyr Lys Asp Val
        115   120   125
Ile Pro Met Ala Asp Ala Ala Gly Ile Ile Arg Tyr Ala Ile Gly Val
    130   135   140
Gly Leu Ala Phe Gln Asn Arg Asn Ser Trp Lys Glu Leu Asn Asp Ile
145   150   155   160
Ala Ser Lys Pro Ser Gln Glu His Ile Phe Lys Val Glu Asp Phe Asp
                165   170   175
Ala Leu Lys Asp Ile Gln Asn Gln Leu Lys Glu Lys Ile Phe Ala
            180   185   190

<210> 3
<211> 191
<212> PRT
<213> Homo sapiens

<400> 3
Cys Pro His Gln Glu Met Asp Ile Val Phe Leu Ile Asp Gly Ser Gly
1   5   10   15
Ser Ile Asp Gln Asn Asp Phe Asn Gln Met Lys Gly Phe Val Gln Ala
            20   25   30
Val Met Gly Gln Phe Glu Gly Thr Asp Thr Leu Phe Ala Leu Met Gln
        35   40   45
Tyr Ser Asn Leu Leu Lys Ile His Phe Thr Phe Thr Gln Phe Arg Thr
    50   55   60
Ser Pro Ser Gln Gln Ser Leu Val Asp Pro Ile Val Gln Leu Lys Gly
65   70   75   80
Leu Thr Phe Thr Ala Thr Gly Ile Leu Thr Val Val Thr Gln Leu Phe
                85   90   95
His His Lys Asn Gly Ala Arg Lys Ser Ala Lys Lys Ile Leu Ile Val
            100   105   110
Ile Thr Asp Gly Gln Lys Tyr Lys Asp Pro Leu Glu Tyr Ser Asp Val
        115   120   125
Ile Pro Gln Ala Glu Lys Ala Gly Ile Ile Arg Tyr Ala Ile Gly Val
    130   135   140
Gly His Ala Phe Gln Gly Pro Thr Ala Arg Gln Glu Leu Asn Thr Ile
145   150   155   160
Ser Ser Ala Pro Pro Gln Asp His Val Phe Lys Val Asp Asn Phe Ala
                165   170   175
Ala Leu Gly Ser Ile Gln Lys Gln Leu Gln Glu Lys Ile Tyr Ala
            180   185   190

<210> 4
<211> 184
<212> PRT
<213> Homo sapiens

<400> 4
Cys Ile Lys Gly Asn Val Asp Leu Val Phe Leu Phe Asp Gly Ser Met
1 5 10 15
Ser Leu Gln Pro Asp Glu Phe Gln Lys Ile Leu Asp Phe Met Lys Asp
20 25 30
Val Met Lys Lys Leu Ser Asn Thr Ser Tyr Gln Phe Ala Ala Val Gln
35 40 45
Phe Ser Thr Ser Tyr Lys Thr Glu Phe Asp Phe Ser Asp Tyr Val Lys
50 55 60
Trp Lys Asp Pro Asp Ala Leu Leu Lys His Val Lys His Met Leu Leu
65 70 75 80
Leu Thr Asn Thr Phe Gly Ala Ile Asn Tyr Val Ala Thr Glu Val Phe
85 90 95
Arg Glu Glu Leu Gly Ala Arg Pro Asp Ala Thr Lys Val Leu Ile Ile
100 105 110
Ile Thr Asp Gly Glu Ala Thr Asp Ser Gly Asn Ile Asp Ala Ala Lys
115 120 125
Asp Ile Ile Arg Tyr Ile Ile Gly Ile Gly Lys His Phe Gln Thr Lys
130 135 140
Glu Ser Gln Glu Thr Leu His Lys Phe Ala Ser Lys Pro Ala Ser Glu
145 150 155 160
Phe Val Lys Ile Leu Asp Thr Phe Glu Lys Leu Lys Asp Leu Phe Thr
165 170 175
Glu Leu Gln Lys Lys Ile Tyr Val
180

<210> 5
<211> 195
<212> PRT
<213> Homo sapiens

<400> 5
Cys Ser Thr Gln Leu Asp Ile Val Ile Val Leu Asp Gly Ser Asn Ser
1 5 10 15
Ile Tyr Pro Trp Asp Ser Val Thr Ala Phe Leu Asn Asp Leu Leu Lys
20 25 30
Arg Met Asp Ile Gly Pro Lys Gln Thr Gln Val Gly Ile Val Gln Tyr
35 40 45
Gly Glu Asn Val Thr His Glu Phe Asn Leu Asn Lys Tyr Ser Ser Thr
50 55 60
Glu Glu Val Leu Val Ala Ala Lys Lys Ile Val Gln Arg Gly Gly Arg
65 70 75 80
Gln Thr Met Thr Ala Leu Gly Thr Asp Thr Ala Arg Lys Glu Ala Phe
85 90 95
Thr Glu Ala Arg Gly Ala Arg Arg Gly Val Lys Lys Val Met Val Ile
100 105 110
Val Thr Asp Gly Glu Ser His Asp Asn His Arg Leu Lys Lys Val Ile
115 120 125
Gln Asp Cys Glu Asp Glu Asn Ile Gln Arg Phe Ser Ile Ala Ile Leu
130 135 140
Gly Ser Tyr Asn Arg Gly Asn Leu Ser Thr Glu Lys Phe Val Glu Glu

145 150 155 160
Ile Lys Ser Ile Ala Ser Glu Pro Thr Glu Lys His Phe Phe Asn Val
165 170 175
Ser Asp Glu Leu Ala Leu Val Thr Ile Val Lys Thr Leu Gly Glu Arg
180 185 190
Ile Phe Ala
195

<210> 6
<211> 195
<212> PRT
<213> Homo sapiens

<400> 6
Cys Pro Ser Leu Ile Asp Val Val Val Val Cys Asp Glu Ser Asn Ser
1 5 10 15
Ile Tyr Pro Trp Asp Ala Val Lys Asn Phe Leu Glu Lys Phe Val Gln
20 25 30
Gly Leu Asp Ile Gly Pro Thr Lys Thr Gln Val Gly Leu Ile Gln Tyr
35 40 45
Ala Asn Asn Pro Arg Val Val Phe Asn Leu Asn Thr Tyr Lys Thr Lys
50 55 60
Glu Glu Met Ile Val Ala Thr Ser Gln Thr Ser Gln Tyr Gly Gly Asp
65 70 75 80
Leu Thr Asn Thr Phe Gly Ala Ile Gln Tyr Ala Arg Lys Tyr Ala Tyr
85 90 95
Ser Ala Ala Ser Gly Gly Arg Arg Ser Ala Thr Lys Val Met Val Val
100 105 110
Val Thr Asp Gly Glu Ser His Asp Gly Ser Met Leu Lys Ala Val Ile
115 120 125
Asp Gln Cys Asn His Asp Asn Ile Leu Arg Phe Gly Ile Ala Val Leu
130 135 140
Gly Tyr Leu Asn Arg Asn Ala Leu Asp Thr Lys Asn Leu Ile Lys Glu
145 150 155 160
Ile Lys Ala Ile Ala Ser Ile Pro Thr Glu Arg Tyr Phe Phe Asn Val
165 170 175
Ser Asp Glu Ala Ala Leu Leu Glu Lys Ala Gly Thr Leu Gly Glu Gln
180 185 190
Ile Phe Ser
195

<210> 7
<211> 195
<212> PRT
<213> Homo sapiens

<400> 7
Cys Pro Thr Tyr Met Asp Val Val Ile Val Leu Asp Gly Ser Asn Ser
1 5 10 15
Ile Tyr Pro Trp Ser Glu Val Gln Thr Phe Leu Arg Arg Leu Val Gly
20 25 30
Lys Leu Phe Ile Asp Pro Glu Gln Ile Gln Val Gly Leu Val Gln Tyr
35 40 45
Gly Glu Ser Pro Val His Glu Trp Ser Leu Gly Asp Phe Arg Thr Lys
50 55 60
Glu Glu Val Val Arg Ala Ala Lys Asn Leu Ser Arg Arg Glu Gly Arg
65 70 75 80

Glu Thr Lys Thr Ala Gln Ala Ile Met Val Ala Cys Thr Glu Gly Phe
85 90 95
Ser Gln Ser His Gly Gly Arg Pro Glu Ala Ala Arg Leu Leu Val Val
100 105 110
Val Thr Asp Gly Glu Ser His Asp Gly Glu Glu Leu Pro Ala Ala Leu
115 120 125
Lys Ala Cys Glu Ala Gly Arg Val Thr Arg Tyr Gly Ile Ala Val Leu
130 135 140
Gly His Tyr Leu Arg Arg Gln Arg Asp Pro Ser Ser Phe Leu Arg Glu
145 150 155 160
Ile Arg Thr Ile Ala Ser Asp Pro Asp Glu Arg Phe Phe Phe Asn Val
165 170 175
Thr Asp Glu Ala Ala Leu Thr Asp Ile Val Asp Ala Leu Gly Asp Arg
180 185 190
Ile Phe Gly
195

<210> 8
<211> 193
<212> PRT
<213> Homo sapiens

<400> 8
Cys Gln Thr Tyr Met Asp Ile Val Ile Val Leu Asp Gly Ser Asn Ser
1 5 10 15
Ile Tyr Pro Trp Val Glu Val Gln His Phe Leu Ile Asn Ile Leu Lys
20 25 30
Lys Phe Tyr Ile Gly Pro Gly Gln Ile Gln Val Gly Val Val Gln Tyr
35 40 45
Gly Glu Asp Val Val His Glu Phe His Leu Asn Asp Tyr Arg Ser Val
50 55 60
Lys Asp Val Val Glu Ala Ala Ser His Ile Glu Gln Arg Gly Gly Thr
65 70 75 80
Glu Thr Arg Thr Ala Phe Gly Ile Glu Phe Ala Arg Ser Glu Ala Phe
85 90 95
Gln Lys Gly Gly Arg Lys Gly Ala Lys Lys Val Met Ile Val Ile Thr
100 105 110
Asp Gly Glu Ser His Asp Ser Pro Asp Leu Glu Lys Val Ile Gln Gln
115 120 125
Ser Glu Arg Asp Asn Val Thr Arg Tyr Ala Val Ala Val Leu Gly Tyr
130 135 140
Tyr Asn Arg Arg Gly Ile Asn Pro Glu Thr Phe Leu Asn Glu Ile Lys
145 150 155 160
Tyr Ile Ala Ser Asp Pro Asp Asp Lys His Phe Phe Asn Val Thr Asp
165 170 175
Glu Ala Ala Leu Lys Asp Ile Val Asp Ala Leu Gly Asp Arg Ile Phe
180 185 190
Ser

<210> 9
<211> 192
<212> PRT
<213> Homo sapiens

<400> 9
Glu Glu Ala Gly Thr Glu Ile Ala Ile Ile Leu Asp Gly Ser Gly Ser

```
1               5                   10                  15
Ile Asp Pro Pro Asp Phe Gln Arg Ala Lys Asp Phe Ile Ser Asn Met
            20                  25                  30
Met Arg Asn Phe Tyr Glu Lys Cys Phe Glu Cys Asn Phe Ala Leu Val
        35                  40                  45
Gln Tyr Gly Gly Val Ile Gln Thr Glu Phe Asp Leu Arg Asp Ser Gln
    50                  55                  60
Asp Val Met Ala Ser Leu Ala Arg Val Gln Asn Ile Thr Gln Val Gly
65                  70                  75                  80
Ser Val Thr Lys Thr Ala Ser Ala Met Gln His Val Leu Asp Ser Ile
                85                  90                  95
Phe Thr Ser Ser His Gly Ser Arg Arg Lys Ala Ser Lys Val Met Val
            100                 105                 110
Val Leu Thr Asp Gly Gly Ile Phe Glu Asp Pro Leu Asn Leu Thr Thr
        115                 120                 125
Val Ile Asn Ser Pro Lys Met Gln Gly Val Glu Arg Phe Ala Ile Gly
    130                 135                 140
Val Gly Glu Glu Phe Lys Ser Ala Arg Thr Ala Arg Glu Leu Asn Leu
145                 150                 155                 160
Ile Ala Ser Asp Pro Asp Glu Thr His Ala Phe Lys Val Thr Asn Tyr
                165                 170                 175
Met Ala Leu Asp Gly Leu Leu Ser Lys Leu Arg Tyr Asn Ile Ile Ser
            180                 185                 190

<210> 10
<211> 244
<212> PRT
<213> Homo sapiens

<400> 10
Tyr Pro Val Asp Ile Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys
1               5                   10                  15
Asp Asp Leu Trp Ser Ile Gln Asn Leu Gly Thr Lys Leu Ala Thr Gln
            20                  25                  30
Met Arg Lys Leu Thr Ser Asn Leu Arg Ile Gly Phe Gly Ala Phe Val
        35                  40                  45
Asp Lys Pro Val Ser Pro Tyr Met Tyr Ile Ser Pro Pro Glu Ala Leu
    50                  55                  60
Glu Asn Pro Cys Tyr Asp Met Lys Thr Thr Cys Leu Pro Met Phe Gly
65                  70                  75                  80
Tyr Lys His Val Leu Thr Leu Thr Asp Gln Val Thr Arg Phe Asn Glu
                85                  90                  95
Glu Val Lys Lys Gln Ser Val Ser Arg Asn Arg Asp Ala Pro Glu Gly
            100                 105                 110
Gly Phe Asp Ala Ile Met Gln Ala Thr Val Cys Asp Glu Lys Ile Gly
        115                 120                 125
Trp Arg Asn Asp Ala Ser His Leu Leu Val Phe Thr Thr Asp Ala Lys
    130                 135                 140
Thr His Ile Ala Leu Asp Gly Arg Leu Ala Gly Ile Val Gln Pro Asn
145                 150                 155                 160
Asp Gly Gln Cys His Val Gly Ser Asp Asn His Tyr Ser Ala Ser Thr
                165                 170                 175
Thr Met Asp Tyr Pro Ser Leu Gly Leu Met Thr Glu Lys Leu Ser Gln
            180                 185                 190
Lys Asn Ile Asn Leu Ile Phe Ala Val Thr Glu Asn Val Val Asn Leu
        195                 200                 205
Tyr Gln Asn Tyr Ser Glu Leu Ile Pro Gly Thr Thr Val Gly Val Leu
```

```
    210                 215                 220
Ser Met Asp Ser Ser Asn Val Leu Gln Leu Ile Val Asp Ala Tyr Gly
225                 230                 235                 240
Lys Ile Arg Ser


<210> 11
<211> 245
<212> PRT
<213> Homo sapiens

<400> 11
Tyr Pro Val Asp Leu Tyr Tyr Leu Met Asp Leu Ser Leu Ser Met Lys
 1               5                  10                  15
Asp Asp Leu Asp Asn Ile Arg Ser Leu Gly Thr Lys Leu Ala Glu Glu
            20                  25                  30
Met Arg Lys Leu Thr Ser Asn Phe Arg Leu Gly Phe Gly Ser Phe Val
        35                  40                  45
Asp Lys Asp Ile Ser Pro Phe Ser Tyr Thr Ala Pro Arg Tyr Gln Thr
    50                  55                  60
Asn Pro Cys Ile Gly Tyr Lys Leu Phe Pro Asn Cys Val Pro Ser Phe
65                  70                  75                  80
Gly Phe Arg His Leu Leu Pro Leu Thr Asp Arg Val Asp Ser Phe Asn
                85                  90                  95
Glu Glu Val Arg Lys Gln Arg Val Ser Arg Asn Arg Asp Ala Pro Glu
            100                 105                 110
Gly Gly Phe Asp Ala Val Leu Gln Ala Ala Val Cys Lys Glu Lys Ile
        115                 120                 125
Gly Trp Arg Lys Asp Ala Leu His Leu Leu Val Phe Thr Thr Asp Asp
    130                 135                 140
Val Pro His Ile Ala Leu Asp Gly Lys Leu Gly Gly Leu Val Gln Pro
145                 150                 155                 160
His Asp Gly Gln Cys His Leu Asn Glu Ala Asn Glu Tyr Thr Ala Ser
                165                 170                 175
Asn Gln Met Asp Tyr Pro Ser Leu Ala Leu Leu Gly Glu Lys Leu Ala
            180                 185                 190
Glu Asn Asn Ile Asn Leu Ile Phe Ala Val Thr Lys Asn His Tyr Met
        195                 200                 205
Leu Tyr Lys Asn Phe Thr Ala Leu Ile Pro Gly Thr Thr Val Glu Ile
    210                 215                 220
Leu Asp Gly Asp Ser Lys Asn Ile Ile Gln Leu Ile Ile Asn Ala Tyr
225                 230                 235                 240
Asn Ser Ile Arg Ser
                245

<210> 12
<211> 243
<212> PRT
<213> Homo sapiens

<400> 12
Tyr Pro Val Asp Leu Tyr Tyr Leu Met Asp Leu Ser Ala Ser Met Asp
 1               5                  10                  15
Asp Asp Leu Asn Thr Ile Lys Glu Leu Gly Ser Arg Leu Ser Lys Glu
            20                  25                  30
Met Ser Lys Leu Thr Ser Asn Phe Arg Leu Gly Phe Gly Ser Phe Val
        35                  40                  45
```

```
Glu Lys Pro Val Ser Pro Phe Val Lys Thr Thr Pro Glu Glu Ile Ala
    50                  55                  60
Asn Pro Cys Ser Ser Ile Pro Tyr Phe Cys Leu Pro Thr Phe Gly Phe
65                  70                  75                  80
Lys His Ile Leu Pro Leu Thr Asn Asp Ala Glu Arg Phe Asn Glu Ile
                85                  90                  95
Val Lys Asn Gln Lys Ile Ser Ala Asn Ile Asp Thr Pro Glu Gly Gly
            100                 105                 110
Phe Asp Ala Ile Met Gln Ala Ala Val Cys Lys Glu Lys Ile Gly Trp
        115                 120                 125
Arg Asn Asp Ser Leu His Leu Leu Val Phe Val Ser Asp Ala Asp Ser
    130                 135                 140
His Phe Gly Met Asp Ser Lys Leu Ala Gly Ile Val Ile Pro Asn Asp
145                 150                 155                 160
Gly Leu Cys His Leu Asp Ser Lys Asn Glu Tyr Ser Met Ser Thr Val
                165                 170                 175
Leu Glu Tyr Pro Thr Ile Gly Gln Leu Ile Asp Lys Leu Val Gln Asn
            180                 185                 190
Asn Val Leu Leu Ile Phe Ala Val Thr Gln Glu Gln Val His Leu Tyr
        195                 200                 205
Glu Asn Tyr Ala Lys Leu Ile Pro Gly Ala Thr Val Gly Leu Leu Gln
    210                 215                 220
Lys Asp Ser Gly Asn Ile Leu Gln Leu Ile Ile Ser Ala Tyr Glu Glu
225                 230                 235                 240
Leu Arg Ser
```


<210> 13
<211> 240
<212> PRT
<213> Homo sapiens

<400> 13

```
Tyr Pro Ile Asp Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys
 1               5                  10                  15
Asp Asp Leu Glu Asn Val Lys Ser Leu Gly Thr Asp Leu Met Asn Glu
            20                  25                  30
Met Arg Arg Ile Thr Ser Asp Phe Arg Ile Gly Phe Gly Ser Phe Val
        35                  40                  45
Glu Lys Thr Val Met Pro Tyr Ile Ser Thr Thr Pro Ala Lys Leu Arg
    50                  55                  60
Asn Pro Cys Thr Ser Glu Gln Asn Cys Thr Thr Pro Phe Ser Tyr Lys
65                  70                  75                  80
Asn Val Leu Ser Leu Thr Asn Lys Gly Glu Val Phe Asn Glu Leu Val
                85                  90                  95
Gly Lys Gln Arg Ile Ser Gly Asn Leu Asp Ser Pro Glu Gly Gly Phe
            100                 105                 110
Asp Ala Ile Met Gln Val Ala Val Cys Gly Ser Leu Ile Gly Trp Arg
        115                 120                 125
Asn Val Thr Arg Leu Leu Val Phe Ser Thr Asp Ala Gly Phe His Phe
    130                 135                 140
Ala Gly Asp Gly Lys Leu Gly Gly Ile Val Leu Pro Asn Asp Gly Gln
145                 150                 155                 160
Cys His Leu Glu Asn Asn Met Tyr Thr Met Ser His Tyr Tyr Asp Tyr
                165                 170                 175
Pro Ser Ile Ala His Leu Val Gln Lys Leu Ser Glu Asn Asn Ile Gln
            180                 185                 190
```

```
Thr Ile Phe Ala Val Thr Glu Glu Phe Gln Pro Val Tyr Lys Glu Leu
        195                 200                 205
Lys Asn Leu Ile Pro Lys Ser Ala Val Gly Thr Leu Ser Ala Asn Ser
    210                 215                 220
Ser Asn Val Ile Gln Leu Ile Ile Asp Ala Tyr Asn Ser Leu Ser Ser
225                 230                 235                 240
```

<210> 14
<211> 241
<212> PRT
<213> Homo sapiens

<400> 14

```
Tyr Pro Ile Asp Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Leu
 1               5                  10                  15
Asp Asp Leu Arg Asn Val Lys Lys Leu Gly Gly Asp Leu Leu Arg Ala
            20                  25                  30
Leu Asn Glu Ile Thr Glu Ser Gly Arg Ile Gly Phe Gly Ser Phe Val
        35                  40                  45
Asp Lys Thr Val Leu Pro Phe Val Asn Thr His Pro Asp Lys Leu Arg
    50                  55                  60
Asn Pro Cys Pro Asn Lys Glu Lys Glu Cys Gln Pro Pro Phe Ala Phe
65                  70                  75                  80
Arg His Val Leu Lys Leu Thr Asn Asn Ser Asn Gln Phe Gln Thr Glu
                85                  90                  95
Val Gly Lys Gln Leu Ile Ser Gly Asn Leu Asp Ala Pro Glu Gly Gly
            100                 105                 110
Leu Asp Ala Met Met Gln Val Ala Ala Cys Pro Glu Glu Ile Gly Trp
        115                 120                 125
Arg Asn Val Thr Arg Leu Leu Val Phe Ala Thr Asp Asp Gly Phe His
    130                 135                 140
Phe Ala Gly Asp Gly Lys Leu Gly Ala Ile Leu Thr Pro Asn Asp Gly
145                 150                 155                 160
Arg Cys His Leu Glu Asp Asn Leu Tyr Lys Arg Ser Asn Glu Phe Asp
                165                 170                 175
Tyr Pro Ser Val Gly Gln Leu Ala His Lys Leu Ala Glu Asn Asn Ile
            180                 185                 190
Gln Pro Ile Phe Ala Val Thr Ser Arg Met Val Lys Thr Tyr Glu Lys
        195                 200                 205
Leu Thr Glu Ile Ile Pro Lys Ser Ala Val Gly Glu Leu Ser Glu Asp
    210                 215                 220
Ser Ser Asn Val Val Gln Leu Ile Lys Asn Ala Tyr Asn Lys Leu Ser
225                 230                 235                 240
Ser
```

<210> 15
<211> 242
<212> PRT
<213> Homo sapiens

<400> 15

```
Tyr Pro Val Asp Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys
 1               5                  10                  15
Asp Asp Leu Glu Arg Val Arg Gln Leu Gly His Ala Leu Leu Val Arg
            20                  25                  30
Leu Gln Glu Val Thr His Ser Val Arg Ile Gly Phe Gly Ser Phe Val
```

35 40 45
Asp Lys Thr Val Leu Pro Phe Val Ser Thr Val Pro Ser Lys Leu Arg
50 55 60
His Pro Cys Pro Thr Arg Leu Glu Arg Cys Gln Ser Pro Phe Ser Phe
65 70 75 80
His His Val Leu Ser Leu Thr Gly Asp Ala Gln Ala Phe Glu Arg Glu
85 90 95
Val Gly Arg Gln Ser Val Ser Gly Asn Leu Asp Ser Pro Glu Gly Gly
100 105 110
Phe Asp Ala Ile Leu Gln Ala Ala Leu Cys Gln Glu Gln Ile Gly Trp
115 120 125
Arg Asn Val Ser Arg Leu Leu Val Phe Thr Ser Asp Asp Thr Phe His
130 135 140
Thr Ala Gly Asp Gly Lys Leu Gly Gly Ile Phe Met Pro Ser Asp Gly
145 150 155 160
His Cys His Leu Asp Ser Asn Gly Leu Tyr Ser Arg Ser Thr Glu Phe
165 170 175
Asp Tyr Pro Ser Val Gly Gln Val Ala Gln Ala Leu Ser Ala Ala Asn
180 185 190
Ile Gln Pro Ile Phe Ala Val Thr Ser Ala Ala Leu Pro Val Tyr Gln
195 200 205
Glu Leu Ser Lys Leu Ile Pro Lys Ser Ala Val Gly Glu Leu Ser Glu
210 215 220
Asp Ser Ser Asn Val Val Gln Leu Ile Met Asp Ala Tyr Asn Ser Leu
225 230 235 240
Ser Ser

<210> 16
<211> 242
<212> PRT
<213> Homo sapiens

<400> 16
Tyr Pro Val Asp Leu Tyr Tyr Leu Val Asp Val Ser Ala Ser Met His
1 5 10 15
Asn Asn Ile Glu Lys Leu Asn Ser Val Gly Asn Asp Leu Ser Arg Lys
20 25 30
Met Ala Phe Phe Ser Arg Asp Phe Arg Leu Gly Phe Gly Ser Tyr Val
35 40 45
Asp Lys Thr Val Ser Pro Tyr Ile Ser Ile His Pro Glu Arg Ile His
50 55 60
Asn Gln Cys Ser Asp Tyr Asn Leu Asp Cys Met Pro Pro His Gly Tyr
65 70 75 80
Ile His Val Leu Ser Leu Thr Glu Asn Ile Thr Glu Phe Glu Lys Ala
85 90 95
Val His Arg Gln Lys Ile Ser Gly Asn Ile Asp Thr Pro Glu Gly Gly
100 105 110
Phe Asp Ala Met Leu Gln Ala Ala Val Cys Glu Ser His Ile Gly Trp
115 120 125
Arg Lys Glu Ala Lys Arg Leu Leu Leu Val Met Thr Asp Gln Thr Ser
130 135 140
His Leu Ala Leu Asp Ser Lys Leu Ala Gly Ile Val Val Pro Asn Asp
145 150 155 160
Gly Asn Cys His Leu Lys Asn Asn Val Tyr Val Lys Ser Thr Thr Met
165 170 175
Glu His Pro Ser Leu Gly Gln Leu Ser Glu Lys Leu Ile Asp Asn Asn

```
            180                 185                 190
Ile Asn Val Ile Phe Ala Val Gln Gly Lys Gln Phe His Trp Tyr Lys
        195                 200                 205
Asp Leu Leu Pro Leu Leu Pro Gly Thr Ile Ala Gly Glu Ile Glu Ser
    210                 215                 220
Lys Ala Ala Asn Leu Asn Asn Leu Val Val Glu Ala Tyr Gln Lys Leu
225                 230                 235                 240
Ile Ser
```

<210> 17
<211> 241
<212> PRT
<213> Homo sapiens

<400> 17

```
Ser Pro Val Asp Leu Tyr Ile Leu Met Asp Phe Ser Asn Ser Met Ser
 1               5                  10                  15
Asp Asp Leu Asp Asn Leu Lys Lys Met Gly Gln Asn Leu Ala Arg Val
            20                  25                  30
Leu Ser Gln Leu Thr Ser Asp Tyr Thr Ile Gly Phe Gly Lys Phe Val
        35                  40                  45
Asp Lys Val Ser Val Pro Gln Thr Asp Met Arg Pro Glu Lys Leu Lys
    50                  55                  60
Glu Pro Trp Pro Asn Ser Asp Pro Pro Phe Ser Phe Lys Asn Val Ile
65                  70                  75                  80
Ser Leu Thr Glu Asp Val Asp Glu Phe Arg Asn Lys Leu Gln Gly Glu
                85                  90                  95
Arg Ile Ser Gly Asn Leu Asp Ala Pro Glu Gly Gly Phe Asp Ala Ile
            100                 105                 110
Leu Gln Thr Ala Val Cys Thr Arg Asp Ile Gly Trp Arg Pro Asp Ser
        115                 120                 125
Thr His Leu Leu Val Phe Ser Thr Glu Ser Ala Phe His Tyr Glu Ala
    130                 135                 140
Asp Gly Ala Asn Val Leu Ala Gly Ile Met Ser Arg Asn Asp Glu Arg
145                 150                 155                 160
Cys His Leu Asp Thr Thr Gly Thr Tyr Thr Gln Tyr Arg Thr Gln Asp
                165                 170                 175
Tyr Pro Ser Val Pro Thr Leu Val Arg Leu Leu Ala Lys His Asn Ile
            180                 185                 190
Ile Pro Ile Phe Ala Val Thr Asn Tyr Ser Tyr Ser Tyr Tyr Glu Lys
        195                 200                 205
Leu His Thr Tyr Phe Pro Val Ser Ser Leu Gly Val Leu Gln Glu Asp
    210                 215                 220
Ser Ser Asn Ile Val Glu Leu Leu Glu Glu Ala Phe Asn Arg Ile Arg
225                 230                 235                 240
Ser
```

<210> 18
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> mutagenic primer

<400> 18
tataggatcc gaggccctcc gagggagtcc tcaagaggat ag 42

<210> 19
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> mutagenic primer

<400> 19
ctactcgagt tacttctccc gaagctggtt ctgaatggtc 40

<210> 20
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> mutagenic primer

<400> 20
ctactcgagt taaccctcga tcgcaaagcc cttctc 36